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| 09/756,451      | 01/08/2001  | Christopher M. Edwards | 60311A              | 5541             |

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THE DOW CHEMICAL COMPANY  
INTELLECTUAL PROPERTY SECTION  
P. O. BOX 1967  
MIDLAND, MI 48641-1967

EXAMINER

FONTAINE, MONICA A

ART UNIT PAPER NUMBER

1732

DATE MAILED: 01/29/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/756,451

Applicant(s)

EDWARDS ET AL.

Examiner

Monica A Fontaine

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5 .                      6) ☐ Other: .

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## **DETAILED ACTION**

### ***Priority***

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the pultrusion" in regard to a process that, while described in previous claims, is not equated with the term pultrusion in Claim 4 or the previous claims. There is insufficient antecedent basis for this limitation in the claim.

Claim 11 is unclear as to which materials listed are blended or not blended. It should clearly relate to support found in the specification on page 7.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Moyer (U.S. Patent 3,993,726). Moyer shows the process as claimed including that which prepares a fiber-reinforced thermoplastic composite article comprising the steps of drawing a fiber bundle continuously through a melt obtained by heating a rigid thermoplastic resin (Column 2, lines 1-6), impregnating the drawn fiber bundle with a melted rigid thermoplastic resin to form a composite melt (Column 2, lines 7-8), drawing the composite melt through a consolidation die to form a thermoplastic shaped article (Column 2, lines 8-16), thermoforming the shaped article on-line (Column 2, lines 16-17), and cooling the shaped article to solidify the thermoplastic resin (Column 2, lines 17-26).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest (U.S. Patent 5,614,228). Moyer shows the process as claimed as discussed above, but does not show the thermoplastic resin's glass transition temperature, hereafter " $T_g$ ." Demerest, hereafter "Demerest '228," shows that it is known for a thermoplastic resin useful in thermoforming operations to have a  $T_g$  not less than 50°C (Column 4, Table "Physical States of PET"). Moyer and Demerest '228 are combinable because they are concerned with a similar

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technical field, namely, that of thermoforming a material into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a material with Demerest '228's  $T_g$  in Moyer's thermoforming process in order to obtain a product with good dimensional stability.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Long, Sr. (U.S. Patent 5,798,067). Moyer and Demerest show the process as claimed as discussed above, but do not show the use of a rotary die during said thermoforming step. Long, Sr., hereafter "Long," shows that it is known for a composite material to be thermoformed using a rotary die (Column 2, lines 32-37). Moyer and Long are combinable because they are concerned with a similar technical field, namely, that of thermoforming a composite melt into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Long's rotary die in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming with a rotary die.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Bhattachayya et al. (U.S. Patent 5,891,379). Moyer and Demerest show the process as claimed as discussed above, but do not show the use of moving rollers during said thermoforming step. Bhattachayya et al., hereafter "Bhattachayya," show that it is known for a composite material to be thermoformed by passing a shaped article through a pair of moving rollers that are oriented perpendicular to the direction of pultrusion (Column 3, 46-56). Bhattachayya and Moyer are combinable because they are concerned with a similar technical field, namely, that of thermoforming a composite melt into various shaped articles. It would

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have been obvious to one of ordinary skill in the art at the time the invention was made to use Bhattachayya's rollers in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming with a roller apparatus.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Manlove (U.S. Patent 6,086,800). Moyer and Demerest show the process as claimed as discussed above, but do not show the use of a rotating die during said thermoforming step. Manlove shows that it is known for a composite material to be thermoformed by passing a shaped article through a rotating die (Column 4, lines 55-65). Manlove and Moyer are combinable because they are concerned with a similar technical field, namely, that of thermoforming a composite melt into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Manlove's rotating die in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming with a rotating die apparatus.

Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Merrill et al. (U.S. Patent 6,256,146). Regarding Claim 6, Moyer and Demerest shows the process as claimed as discussed above, but do not show hauling off one side of a shaped article at a faster rate than another side. Merrill et al., hereafter "Merrill," show that it is known to haul off one side of a shaped article at a faster rate than another side (Column 3, lines 15-19, 23-27; Column 34, lines 30-36). The examiner notes that although Merrill does not explicitly use the phraseology of the claim, for example "hauling," during

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thermoforming, deformation of a nonuniform nature takes place in the reference, and uneven pulling of the article would be a likely process by which to achieve nonuniform deformation. Merrill and Moyer are combinable because they are concerned with a similar field, namely, that of post-forming/thermoforming polymeric materials into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Merrill's uneven hauling of a shaped article in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming when hauling off a product at different rates. Regarding Claim 7, Moyer and Demerest show the process as claimed as discussed above, but do not show forming a curved composite during the thermoforming process. Merrill shows that it is known to mold a composite material into a curved article during thermoforming (Column 34, lines 30-36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to mold a curved article, as in Merrill, in Moyer's and Demerest's composite melt thermoforming process in order to produce a curved article.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Padovani (U.S. Patent 5,591,463). Moyer and Demerest show the process as claimed as discussed above, but do not show the use of winding a shaped article on a mandrel during said thermoforming step. Padovani shows that it is known for a thermoplastic material to be thermoformed by winding it around a mandrel (Column 9, lines 31-39). Padovani and Moyer are combinable because they are concerned with a similar technical field, namely, that of thermoforming a thermoplastic sheet into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Padovani's

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mandrel in Moyer's and Demerest's step of thermoforming a composite melt in order to obtain a product with characteristics of a composite mixture and to capitalize on the advantages that are encountered when thermoforming with a mandrel.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Park (U.S. Patent 4,058,581). Regarding Claim 9, Moyer and Demrest show the process as claimed as discussed above, but do not require exclusive thermoplastic resins. Park shows that it is known to use a thermoplastic polyurethane in a thermoforming operation (Column 6, lines 5-15). Park and Moyer are combinable because they are concerned with a similar technical field, namely, that of thermoforming a composite melt into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Park's specific thermoplastic resin in Moyer's and Demerest's thermoforming process in order to obtain a product with desired physical characteristics of the specific resin. Regarding Claim 10, Moyer, Demerest and Park show the process as claimed as discussed above, including Moyer's requiring reinforcing fibers of glass (Column 2, lines 1-7), meeting applicant's claim.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moyer, in view of Demerest, in further view of Murakami (U.S. Patent 5,433,419). Moyer and Demerest show the process as claimed as discussed above, but do not require more than one thermoplastic resins. Murakami shows that it is known to have a blend of polyurethane and polypropylene (Column 3, lines 56-66; Column 6, lines 56-62). Murakami and Moyer are combinable because they are concerned with a similar technical field, namely, that of thermoforming a composite melt into various shaped articles. It would have been obvious to one of ordinary skill in the art at the time



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the invention was made to use Murakami's blend of materials in Moyer's and Demerest's thermoforming process in order to obtain a product with desired physical characteristics of the specific combination of resins.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560. Although the conflicting claims are not identical, they are not patentably distinct from each other because the '560 claim is stated in different terms, but is drawn to the same process as claimed in the instant application.

Claim 2 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest (U.S. Patent 5,614,228). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a material with Demerest '228's  $T_g$  in Moyer's thermoforming process in order to obtain a product with good dimensional stability.

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Claim 3 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest, in further view of Long, Sr. (U.S. Patent 5,798,067). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Long's rotary die in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming with a rotary die

Claim 4 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest, in further view of Bhattachayya (U.S. Patent 5,891,379). It would have been obvious to one of ordinary skill in the art at the time the invention was made to Bhattachayya's rollers in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming with a roller apparatus.

Claim 5 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest, in further view of Manlove (U.S. Patent 6,086,800). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Manlove's rotating die in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming with a rotating die apparatus.

Claims 6 and 7 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest, in further view of Merrill (U.S. Patent 6,256,146). Regarding Claim 6, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use

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Merrill's uneven hauling of a shaped article in Moyer's and Demerest's step of thermoforming a composite melt in order to capitalize on the advantages that are encountered when thermoforming when hauling off a product at different rates. Regarding Claim 7, it would have been obvious to one of ordinary skill in the art at the time the invention was made to mold a curved article, as in Merrill, in Moyer's and Demerest's composite melt thermoforming process in order to produce a curved article.

Claim 8 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest, in further view of Padovani (U.S. Patent 5,591,463). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Padovani's mandrel in Moyer's and Demerest's step of thermoforming a composite melt in order to obtain a product with characteristics of a composite mixture and to capitalize on the advantages that are encountered when thermoforming with a mandrel.

Claims 9 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest, in further view of Park (U.S. Patent 4,058,581). Regarding Claim 9, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Park's specific thermoplastic resin in Moyer's and Demerest's thermoforming process in order to obtain a product with desired physical characteristics of the specific resin. Regarding Claim 10, Moyer shows that it is known to require reinforcing fibers of glass.

Claim 11 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 5,891,560 in view of Demerest,

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in further view of Murakami (U.S. Patent 5,433,419). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use Murakami's blend of materials in Moyer's and Demerest's thermoforming process in order to obtain a product with desired physical characteristics of the specific combination of resins.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with regard to thermoforming in general:

U.S. Patent 5,106,567 to Demerest

U.S. Patent 5,62,838 to Weidner

U.S. Patent 4,559,262 to Cogswell et al.

U.S. Patent 4,037,011 to Hattori et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A Fontaine whose telephone number is 703-305-7239. The examiner can normally be reached on Monday-Friday 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rick Crispino can be reached on 703-308-3853. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9310 for After Final communications.


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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

maf  
January 22, 2003

  
JILL L. HEITBRINK  
PRIMARY EXAMINER  
ART UNIT 1732  
1/23/03